IN THE DRAWINGS

Applicants propose to label the blocks in Figs. 1-3 and 5 of the drawings, and to insert the caption "PRIOR ART" into Figs. 1-3 of the drawings in accordance with the accompanying ANNOTATED SHEETS SHOWING CHANGES.

Enclosed herewith are REPLACEMENT SHEETS in which the above changes have been incorporated.

REMARKS

The specification has been amended on page 3 to correct a typographical error.

The claims have been amended to more clearly define the invention as disclosed in the written description. In particular, claim 17 has been cancelled, while claim 16 has been amended to claim a computer-readable storage medium having the computer program stored thereon. In addition, the claims have been amended for clarity.

Applicants respectfully submit that claims 1 (and 15) recites all essential technical features that are necessary to define the scope of protection of the invention. In particular, Applicants' invention is directed to a system wherein parametric encoding data is applied to frequency sample blocks of a time scaled signal. For example, a stereo signal may be generated from a mono signal by applying parameters of the extension data to frequency sample blocks of a time scaled signal. Furthermore, the system uses a fixed time interval of the time scaled signal rather than of the original signal as is typical in the prior art. Thus, as the parameters of the parametric data relates to the time base of the original signal while the frequency sample blocks relate to the time base of the time scaled signal, these parameters are not used directly. Rather, the parameters are compensated for the time offsets between the time scaled signal and the original signal.

As described in the independent claims, the claimed invention uses a couple of steps to do so. Firstly, a time

relationship (association) between a first parameter value of the extension data (i.e., a value synchronized to the original signal) and one of the frequency sample blocks (i.e., synchronized to the time scaled signal) is determined. Thus, the step comprises determining a time relationship between the parameter value and one frequency sample block. This relationship can be determined in many different ways, and indeed many different types of relationships or associations may be used. For example, as clarified in claim 2 and described in the description, the relationship may simply consist in a determination of the frequency sample block that covers a time of the time scaled signal which corresponds to the time instant in the original signal for which the parameter is provided. Also, examples are provided (and claimed) where the relationship is determined as the time instant within the frequency sample block that corresponds to the time instant in the original signal for which the parameter is provided. Specific examples of how this relationship can be determined are also provided.

Applicants, however, submit that it is clear to the skilled person that the invention is in no way limited to a specific time relationship being used, or indeed that any specific approach to determining a time relationship must be used. Rather, it is only important that a time association between the parameter (synchronized to the original signal) and the frequency sample blocks (synchronized to the time scaled signal) is determined.

The claim further defines that the first parameter value and the time relationship linking this parameter to the time base

of the time scaled signal is then used to determine a parameter value that can be applied in another frequency sample block. Again specific examples are provided in the specification, including, for example, the use of linear interpolation between parameter values surrounding this new frequency sample block. However, again it is respectfully submitted that the only essential element of this step is that the original parameter value can be modified to generate a parameter value for a different frequency sample block using the time relationship/ association. Indeed, it is not important that any specific parameter is determined or that any specific algorithm or function for this is used. Indeed, it is respectfully submitted that the skilled person will be aware that many different and varying approaches can be used depending on the specific parameter characteristics, design preferences and application requirements. As an example, the second parameter value may simply be a value that is scaled by a predetermined value proportional to the time difference between the second frequency sample block and the time instant of the time scaled signal that the first parameter value corresponds to (this may, e.g., be very useful for parameters indicative of a transient).

Furthermore, once the second parameter value has been determined for the second frequency sample block, it is used to modify the data thereof. It is respectfully submitted that how the data is modified depends entirely on the type of parameter of the extension data that is used. For example, for parametric stereo parameters, the second parameter value is used to modify the stereo

characteristics as is defined for such parameter values. For example, for an IID parameter, the data value is scaled differently for the left and right signal as defined by the IID parameter.

However, Applicants respectfully submit that the invention is not limited to any specific type of parameter of encoded extension data but may be applied to any parameter, including of course stereo parameters. However, as will be appreciated by the skilled person, there is no technical or other reason why the invention should be limited to specific parameters, and accordingly there is no reason why the modification performed to the data of the second frequency sample block should be modified to any specific processing.

Thus, it is respectfully submitted that the independent claims clearly define the protection sought and that any limitation or restriction to specific parameters or specific algorithms for defining the time association or modifying data would be iniquitous and result in an unreasonably limited protection. It is furthermore respectfully submitted that the claims include all essential features of the invention and clearly define the interaction between the different features, functions and parameters that result in the solution to the objective problem, namely that of how to reduce complexity of the time scaling system.

With respect to the Examiner's comments relating to claims 6 and 7, it is respectfully submitted that there is no inconsistency. Indeed, the claim merely recites the feature that for at least one time association, a previous time association is

used in the calculation. It is respectfully submitted that this feature is clear. For example, the current time association may be set to be identical to the last determined time associated, perhaps updated with a delta to reflect a dynamic change.

Applicants do not follow the comment about no previous time association existing. The feature of claim 6 defines the scope wherein a current time association is calculated from a previous time association. In the example where no such previous time association exists, another approach may indeed be used but this simply means that this specific example is not part of the scope defined by this feature. In other words, claim 6 is inherently related to the situation where a previous time association does exist. It is noted, that there is no requirement that a feature of a claim has to be applicable in all possible scenarios. Rather, the claim merely defines scope corresponding to a typical scenario, namely where previous time associations occur.

To clear up any doubt, it is noted that the terms "first", "second" and "third" are clearly used in the claims to provide labels for terms in order to avoid any lack of clarity or ambiguity between the terms. It is respectfully submitted that this is entirely in line with standard patent practice. It is respectfully submitted that Applicants' use of the term "first time-association" does not mean that this is the earliest time association ever generated. Rather, it is being used to identify a specific time association in a window of the input signal.

Applicants believe that the above changes and explanation answer the Examiner's 35 U.S.C. 112, paragraph 2, rejection of clams 1, 6, 7, 15 and 17, and respectfully request withdrawal thereof.

The Examiner has rejected claims 1-17 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Application Publication No. 2001/0032072 to Inoue. The Examiner has further rejected claim 11 under 35 U.S.C. 103(a) as being unpatentable over Inoue.

The Inoue publication discloses a system for time scaling wherein a buffer (11) is used to store encoded data. The time scaling rate is controlled in response to signal characteristics (specifically whether this is voiced/unvoiced sounds) and the loading of the buffer (11). In the cited embodiment, an encoded signal is stored in the buffer and read out to a frame signal decoding section (14) that performs the speech speed rate conversion. Thus, the decoding section 14 is fed a standard (non-time scaled) signal s11 and may then perform time scaling on this signal. The time scaling is performed such that it provides the speech speed converting rate that is indicated by signal s4 (ref. in particular Fig. 7 and paragraph [0075]). Thus, it is respectfully submitted that the only time scaling that is performed in the cited embodiment of Inoue is that which is performed in the decoding section 14. However, it is respectfully submitted that Inoue does not describe an operation of decoding section 14 corresponding to the features of the Applicants' claims.

It is respectfully submitted that the description and operation of decoding section 14 is very different from the the subject invention. Indeed, it is respectfully submitted that the time scaling operation of decoding section 14 is not described, and thus can merely be considered to correspond to a conventional decoder that includes conventional time scaling approaches (such as, e.g., those acknowledged in the Background section of the current application). In particular, the only description in Inoue of the operation of decoding section 14 is the following:

Paragraph [0080]

"In Step S133, the frame-signal decoding section 14 receives the coded data s11 read from the storage section 11. Using the speech-speed converting rate s4, the section 14 performs speech speed conversion on the coded data s11."

Paragraph [0081]

"The frame-signal decoding section 14 generates an output acoustic signal s9 from the coded data s11."

Paragraph [0082]

"In the real-time speech speed converter of FIG. 7 and the method shown in FIG. 8, the speech speed is converted by interpolating the encoding parameters in the process of decoding the acoustic signal."

Applicants therefore submit that the only specific time scaling operation that is described in Inoue is that the "speech speed is converted by interpolating the encoding parameters". However, it is respectfully submitted that the subject invention does not merely correspond to interpolation of encoding parameters when performing a time scaling. Indeed, such an approach merely suggests that a conventional time scaling approach is used (such as that described in the Background section of the present application (e.g., with reference to FIG. 2)). Indeed, it is respectfully submitted that the subject invention is directed to a completely different problem. Specifically, the subject invention is directed to the problem of how to reduce complexity and resource demand when performing time scaling for parameter based encoded signals.

The subject invention's solution to this problem is firstly to use frequency conversion that is fixed relative to the time base of the time scaled signal rather than the original input signal (as is the approach in the prior art). Specifically, the subject invention generates frequency sample blocks corresponding to a fixed time interval of the time scaled signal. Furthermore, the fixed time interval is independent of a time scaling factor. However, this is a fundamental change which results in the frequency sample blocks no longer being synchronized or aligned with the time base of the input signal, and therefore no longer being synchronized with the parameters of the extension data. Accordingly, these parameters can no longer be used directly.

The subject invention solves this problem by first determining the time relationship between one parameter value and one frequency sample block. Based on the time relationship, a second parameter value is generated from the first parameter value for a second frequency sample value. This parameter value is then used to modify the data in the second frequency sample value. Thus, the processing provides a conversion between the different time bases and allows the frequency conversion to use a fixed number of samples, a fixed transform algorithm and fixed windowing. This may very substantially reduce the complexity and resource usage.

Applicants respectfully submit that Inoue does not disclose, suggest or hint at any of these features or even identifies the problem solved by the subject invention. In particular, it is respectfully submitted that Inoue clearly does not disclose any generation of frequency sample blocks for the time scaled signal where each frequency sample block corresponds to a fixed time interval of the time scaled signal and where the fixed time interval is independent of a time scaling factor. Indeed, Inoue does not disclose any detailed operation of the decoding section 14 whatsoever.

It follows that Inoue cannot and does not even hint at the problem of the conflict between frequency sample blocks being synchronized with the time base of the time scaled signal and parameters being synchronized with the time base of the original input signal. Accordingly, Inoue cannot and does not either

disclose the features of determining a first time association between a first parameter value of the extension data and a first frequency sample block having an associated first time interval of the time scaled signal or of determining a second parameter value associated with a second frequency sample block in response to the first time association and the first parameter value.

Clearly, Inoue cannot either disclose that such parameter values are used to modify frequency sample blocks, or that such modified frequency sample blocks can be used to generate time domain sample blocks. Accordingly, Applicants respectfully submit that the independent claims are neither anticipated nor rendered obvious by the cited prior art.

For completeness, it is noted that the first embodiment of Inoue (i.e., corresponding to FIG. 3) clearly does not disclose any of the features missing from the second embodiment and merely provides an example wherein the time scaling is performed on a PCM signal without consideration of any parametric data.

In view of the above, Applicants believe that the subject invention, as claimed, is neither anticipated nor rendered obvious by the prior art, and as such, is patentable thereover.

Applicants believe that this application, containing claims 1-16, is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

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